

OCCASIONAL PAPERS

THE MUSEUM

TEXAS TECH UNIVERSITY

NUMBER 145

17 JANUARY 1992

A NEW SUBSPECIES OF THE TAWNY-BELLIED COTTON RAT, *SIGMODON FULVIVENTER*, FROM TRANS-PECOS TEXAS

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The tawny-bellied cotton rat (*Sigmodon fulviventer*) occupies elevated Chihuahuan Desert grasslands of the southwestern United States and México (Hall, 1981). Prior to the recent discovery of an isolated population from along the southwestern flank of the Davis Mountains of Trans-Pecos Texas, it was known only from southwestern New Mexico, southeastern Arizona, and the north-central states of México (south to Michoacán). Nowhere in the United States (Findley *et al.*, 1975; Hoffmeister, 1986) or México (Baker, 1969; personal communication) does the species appear to be particularly common.

Certain aspects of the life history of the newly discovered Texas population, as determined from the 20 specimens of various ages taken during one day and two nights of trapping, were treated by Stangl (1992). Eighteen of these were prepared as museum skins accompanied by skulls or body skeletons, and are deposited in the Collection of Recent Mammals at Midwestern State University (MWSU 17898–17915). At this writing, two are being maintained alive for breeding studies.

A comparative series of specimens of *S. f. minimus* from the Museum of Southwestern Biology, University of New Mexico, permits documentation of a noticeable degree of differentiation between Texas specimens and those from New Mexico. For this loan, I gratefully acknowledge Terry Yates and William Gannon of that institution. Morphological differentiation is of a magnitude as to suggest that the isolated Davis Mountains population represents a previously undescribed race. This population is named and described as follows:

Sigmodon fulviventer dalquesti, new subspecies

Holotype.—Adult male (scrotal testes 18×10 mm), skin and body skeleton, Midwestern State University Collection of Recent Mammals no. 17906, from 1.5 mi. W Point-of-Rocks Park, Jeff Davis County, Texas; obtained on 27 March 1991 by F. B. Stangl, Jr., original no. 3085. The type specimen has been deposited in The Museum, Texas Tech University, as specimen no. 59413. External measurements (mm) of the holotype are: total length, 242; length of tail vertebrae, 90; length of hind foot, 28; length of ear, 18; weight 98.5 grams. Selected cranial measurements (mm) are as follows: greatest length of skull, 32.96; rostral breadth, 5.56; least interorbital breadth, 4.81; zygomatic breadth, 19.62; mastoid breadth, 14.49; alveolar length of maxillary tooththrow, 6.71; alveolar length of mandibular tooththrow (molars), 6.66.

Distribution.—Known only from type locality.

Description.—Size large for the species (see Table 1 for comparison of selected cranial measurements of topotypes of *S. f. dalquesti* with those of specimens of *S. f. minimus* of comparable size from New Mexico). Pelage is distinctive for the relatively few guard hairs overlaying the black wool. More than half of the dorsal guard hairs are white, presenting an almost frosted appearance.

Comparisons.—Comparisons need be made only with *S. f. minimus* Mearns, 1894, the nearest populations of which are separated from the isolated type locality of *S. f. dalquesti* by a distance of about 200 kilometers. From *S. f. minimus*, the new subspecies differs in larger size for most cranial characters (Table 1); a sparser coat of guard hairs, thereby exposing more of the black underfur or wool; and a greater proportion (more than half) of guard hairs white in color. The dorsal pelage of *S. f. dalquesti* appears rather frosted (and the individual guard hairs more conspicuous) in comparison to the more yellowish dorsal pelage of *S. f. minimus*, with its proportionally greater number of yellow to tan guard hairs.

The only other subspecies of tawny-bellied cotton rat from the northern part of the range is *S. f. goldmani*, which is known only from the type locality in the Rio Grande Valley of south-central New Mexico. Information provided in the original description of *goldmani* (Bailey, 1913) makes comparison of pelage characteristics difficult; however, comparison of cranial measurements of the holotype with those of skulls of similar size of *S. f. dalquesti* and *S. f. minimus* provides evidence of a close affinity between the New Mexico races *minimus* and *goldmani*, each of which is smaller and less robust cranially than the new subspecies.

Remarks.—The most recent systematic review of this species was by Baker (1969), who remarked on the apparent absence of *S. fulviventer*

TABLE 1.—Comparison of representative cranial measurements (means and ranges) for three age classes of *Sigmodon fulviventer minimus* from New Mexico with comparable specimens of *S. f. dalquesti* from Jeff Davis County, Texas. Characters that average larger for New Mexican specimens are indicated with an asterisk.

Character	Locality and subspecies			
	Texas		New Mexico	
	<i>S.f. dalquesti</i>		<i>S.f. minimus</i>	
Old adults (N = 1, 3)				
Skull length	36.19	—	35.21	(34.78-35.82)
Zygomatic width	20.66	—	20.53	(20.18-20.86)
Interorbital width	5.11	—	4.97	(4.88-5.14)
Basioccipital length	6.23	—	5.68	(5.57-5.83)
Bullar width	5.08	—	4.93	(4.84-5.04)
Adults (N = 4, 3)				
Skull length	33.10	(32.71-33.41)	32.31	(32.01-32.75)
Zygomatic width	19.62	(19.57-19.65)	19.27	(19.26-19.28)
Interorbital width*	4.71	(4.47-4.87)	4.73	(4.68-4.77)
Basioccipital length*	5.09	(4.53-5.62)	5.13	(4.97-5.38)
Bullar width	4.77	(4.61-4.86)	4.50	(4.23-4.69)
Young adults (N = 2, 6)				
Skull length	31.17	(31.15-31.19)	30.97	(30.08-31.59)
Zygomatic width	19.00	(18.54-19.45)	18.64	(17.96-19.36)
Interorbital width	4.76	(4.69-4.82)	4.76	(4.39-4.93)
Basioccipital length	5.11	(4.99-5.23)	4.67	(4.39-4.93)
Bullar width*	4.56	(4.51-4.61)	4.60	(4.27-4.97)

from suitable-appearing habitat in western Texas. The extent of distribution of *S. f. dalquesti* in Jeff Davis and perhaps adjacent counties is unknown. The mammalian fauna of these flat grasslands was neglected by earlier collectors (Bailey, 1905, and Blair, 1940, for example), in favor of nearby, higher elevations. Distribution of *S. f. dalquesti*, as presently understood, is quite localized (restricted to the type locality); the typically cyclic nature of *Sigmodon* populations (which also seems to characterize *S. fulviventer* in Texas) may have contributed to its escaping earlier notice. At the site where the 20 specimens that form the basis of this report were collected in late March 1991 (Stangl, 1992), two days and two nights of subsequent trapping on 16–17 May 1991 failed to produce any additional *S. f. dalquesti*. Sampling was restricted to roadsides along the margins of suitable habitat (runways were noted to extend into adjacent pastures), however, and it is unlikely this local population was depleted through trapping efforts alone.

Lee and Zimmerman (1969) described an almost equal distribution of heterozygotes and each homozygotic condition for a Robertsonian fission/fusion chromosomal polymorphism among 26 individuals of *S. f. minimus* from scattered populations in New Mexico and Arizona. Of six karyotyped individuals of *S. f. dalquesti*, one was heterozygous ($2N=29$), one was homozygous for the biarmed condition ($2N=28$), and three were homozygous for the acrocentric condition ($2N=30$). These data are too limited to determine whether the differentiation of cytotype frequencies can be attributed to sampling error or are reflective of an earlier population bottleneck. Soft tissues (liver, heart, kidney, and muscle) from the six karyotyped specimens are deposited in the Collection of Frozen Tissues of The Museum, Texas Tech University (TK 29915–29920).

Etymology.—This subspecies is named in honor of my good friend and mentor, Walter W. Dalquest of Midwestern State University, in recognition for his many contributions to our knowledge of neotropical mammals—both fossil and Recent.

ACKNOWLEDGMENTS

Midwestern State University mammalogy students Toby Hibbitts, Alan Pickering, and David Holbert shared in the discovery of the first *Sigmodon fulviventer* from Texas, and their assistance in the collection and preparation of specimens mentioned in this report is gratefully acknowledged.

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